

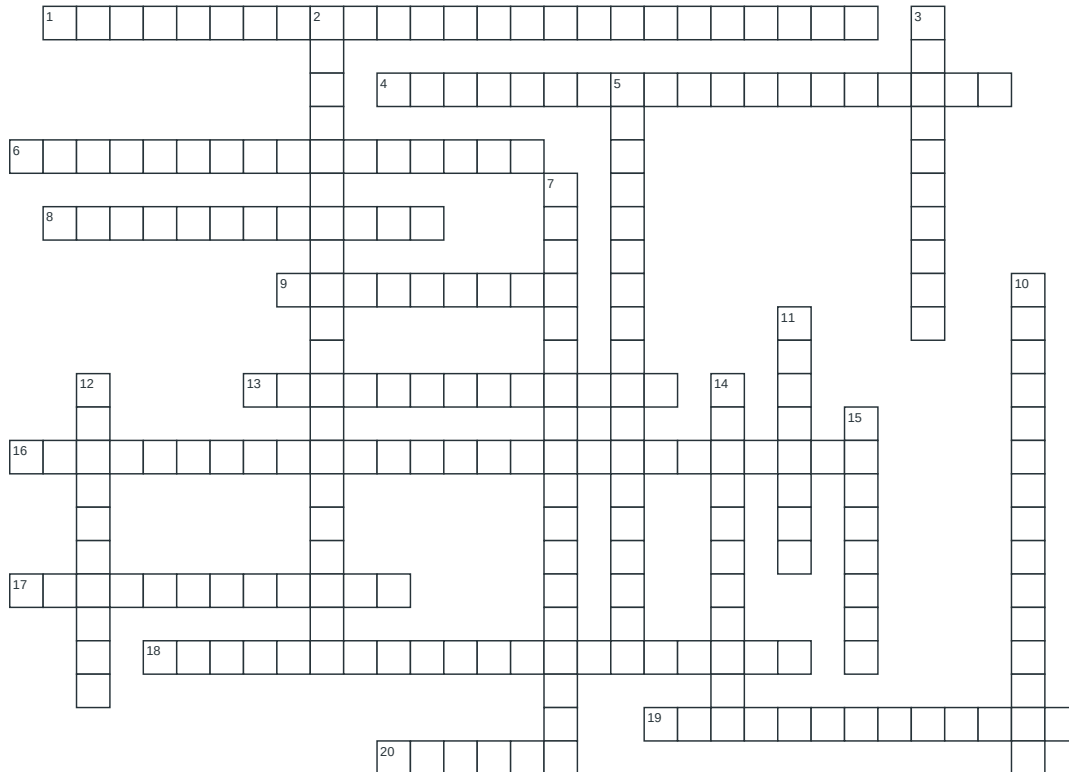
Galaxies and the Universe Crossword

Hard | 20 clues | Student Worksheet

Name: _____

Date: _____

Directions: Use the clues to complete the grid. Omit spaces, punctuation, and hyphens.



ACROSS

1. Radiation left from the early universe and observed across the sky
4. Graph of orbital speed versus distance from a galaxy's center.
6. Increase in distances among far-separated regions of the universe.
8. Evolution from an early hot, dense universe that has expanded
9. Distance light travels in one year.
13. A group of galaxies bound by gravity
16. Two galaxies lie far outside our local gravitational group. The farther one has greater redshift. Which model is this consistent with
17. Wavelength-specific feature used to study an object's composition and motion.
18. Bending of light by gravity that can reveal mass along its path.
19. Recognized pattern of stars on the sky; its stars need not be near each other.

ACROSS (continued)

20. A gravitationally bound system of stars, gas, dust, and dark matter

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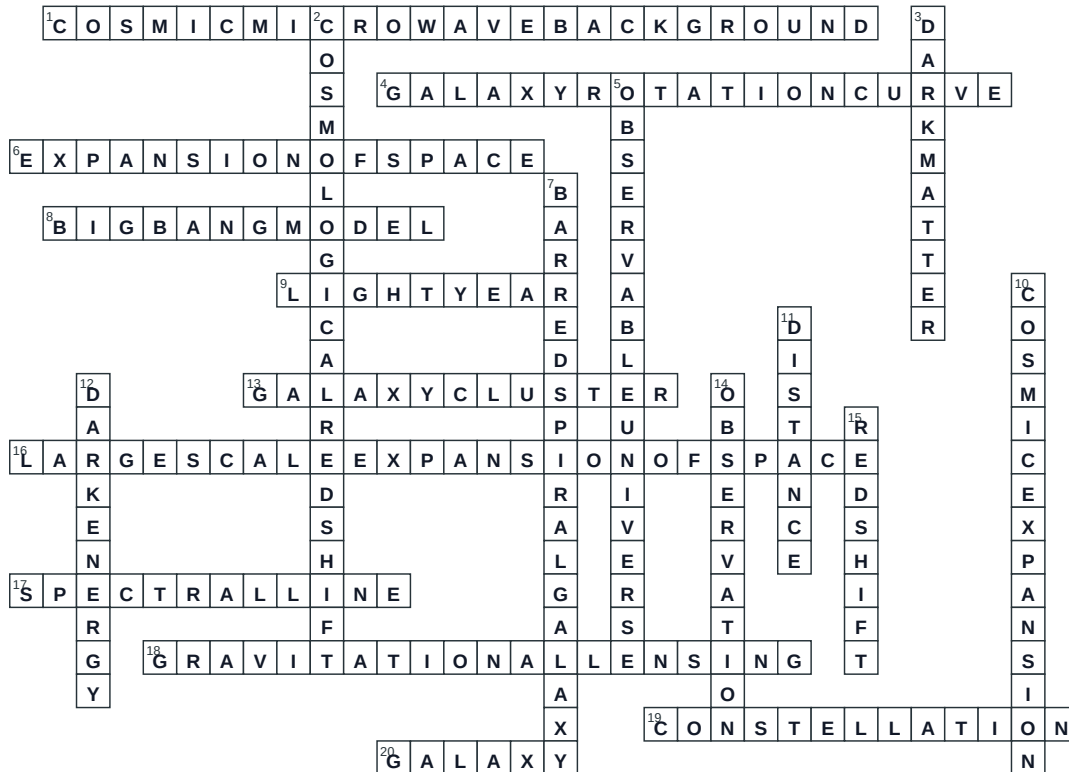
2. Increase in observed wavelength associated with the expansion of space
3. Matter inferred from gravitational effects but not observed through emitted light
5. Region of the universe from which light has had time to reach an observer.
7. Spiral galaxy whose arms extend from a central bar-shaped region
10. Increase in large-scale distances between unbound regions of the universe.
11. Measure of a light-year
12. Name for the component associated with the observed accelerated expansion of the universe.
14. Information gathered with senses or scientific instruments
15. Shift of spectral features toward longer wavelengths.

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Hard | 20 clues | Teacher Answer Key

TEACHER ANSWER KEY

Completed grid and numbered answers. Spaces and punctuation are omitted in the grid.



ACROSS

1. Cosmic Microwave Background
4. Galaxy rotation curve
6. Expansion of space
8. Big Bang Model
9. Light-year
13. Galaxy Cluster
16. Large-scale Expansion Of Space
17. Spectral line
18. Gravitational lensing
19. Constellation
20. Galaxy

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2. Cosmological Redshift
3. Dark Matter
5. Observable universe
7. Barred Spiral Galaxy
10. Cosmic expansion
11. Distance
12. Dark energy
14. Observation
15. Redshift